Remarks

The final Office Action mailed August 19, 2008 and the Advisory Action mailed November 12, 2008 have been reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-19 are now pending in this application. Claims 1-19 stand rejected.

The rejection of Claims 1-8 under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter is respectfully traversed.

Applicant has amended independent Claim 1 to recite ". . . displaying on an ultrasonic image display device said reference image and said real-time image side by side." Accordingly, Applicant submits that Claim 1, as amended, satisfies the requirements of 35 U.S.C. § 101.

For at least the reasons set forth above, Applicant respectfully requests that the Section 101 rejection of Claims 1-8 be withdrawn.

The rejection of Claims 1, 6-9, and 16-19 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,938,607 to Jago et al. (hereinafter referred to as "Jago") is respectfully traversed.

Jago describes an ultrasonic diagnostic imaging system provided to aid in the diagnosis of patient conditions by providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis. The ultrasound system (10) includes a scanhead (14) and transducer (12) which transmit ultrasonic waves into the subject. A beamformer (16) and a signal processor (64) process the echo data. A display processor (68) then forms the echo data into an image which can be stored in the storage medium (24) and/or displayed on a display (70). A browser (120) is included to allow the operator to retrieve prior scan settings and then set the ultrasound to use the retrieved scan settings.

Claim 1 recites an ultrasonic imaging method including "storing a reference image of a subject acquired before providing medical treatment to the subject and a scan condition used to

acquire said reference image; reading said reference image and said scan condition, said reference image comprising a region of treatment before providing medical treatment to the subject encompassed by a region of interest; acquiring a real-time image of the subject after providing medical treatment to the subject by setting said scan condition; automatically defining the region of interest in said real-time image encompassing the region of treatment after providing medical treatment to the subject; and displaying on an ultrasonic image display device said reference image and said real-time image side by side."

Jago does not describe or suggest an ultrasonic imaging method as recited in Claim 1. More specifically, Jago does not describe or suggest automatically defining a region of interest in the real-time image encompassing the region of treatment after providing medical treatment to the subject. Rather, in contrast to the present invention, Jago merely describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis

Accordingly, for at least the reasons set forth above, Claim 1 is submitted as patentable over Jago.

Claims 6-8 depend from independent Claim 1. When the recitations of Claims 6-8 are considered in combination with the recitations of Claim 1, Applicant submits that Claims 6-8 are likewise patentable over Jago.

Claim 9 recites an ultrasonic diagnostic apparatus including "an ultrasonic probe; a transmitting/receiving device for driving said ultrasonic probe to transmit ultrasonic pulses into a subject and receive ultrasonic echoes from inside the subject and outputting received data; an ultrasonic image producing device for producing an ultrasonic reference image from the resulting received data, wherein said ultrasonic image producing device is configured to produce a real-time image, said real-time image acquired after providing medical treatment to the subject; a reference image storage device for storing said reference image, said reference image comprising a region of interest encompassing a region of treatment before providing medical treatment to the subject; a scan condition storage device for storing a scan condition for said reference image; an automatic scan condition setting device for reading said scan condition and setting said scan condition, wherein said reference and real-time images are acquired by setting said scan

condition; an automatic region defining device for defining in said real-time image the region of interest encompassing the region of treatment after providing medical treatment to the subject; and an ultrasonic image display device for reading said reference image and displaying said reference image and said real-time image side by side."

Jago does not describe or suggest an ultrasonic diagnostic apparatus as recited in Claim 9. More specifically, Jago does not describe or suggest an automatic region defining device for defining in the real-time image a region of interest encompassing the region of treatment after providing medical treatment to the subject. Rather, in contrast to the present invention, Jago merely describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis

Accordingly, for at least the reasons set forth above, Claim 9 is submitted as patentable over Jago.

Claims 16-19 depend from independent Claim 9. When the recitations of Claims 16-19 are considered in combination with the recitations of Claim 9, Applicant submits that Claims 16-19 are likewise patentable over Jago.

For at least the reasons set forth above, Applicant respectfully requests that the Section 102 rejection of Claims 1, 6-9 and 16-19 be withdrawn.

The rejection of Claims 2-5 and 10-15 under 35 U.S.C. § 103(b) as being unpatentable over Jago in view of U.S. Patent Application Publication No. 2002/0120195 to Hossack et al. (hereinafter referred to as "Hossack") is respectfully traversed.

Jago is described above.

Hossack describes a method for combining multiple images to create a single image with a wider field of view. The method includes acquiring at least two images, selecting test blocks from both images, determining a translation value, using the translation value to determine a rotation value, and then applying the translation and rotation values to merge the images into a single image with a wider field of view.

Claims 2-5 depend from Claim 1, which recites an ultrasonic imaging method including "storing a reference image of a subject acquired before providing medical treatment to the subject and a scan condition used to acquire said reference image; reading said reference image and said scan condition, said reference image comprising a region of treatment before providing medical treatment to the subject encompassed by a region of interest; acquiring a real-time image of the subject after providing medical treatment to the subject by setting said scan condition; automatically defining the region of interest in said real-time image encompassing the region of treatment after providing medical treatment to the subject; and displaying on an ultrasonic image display device said reference image and said real-time image side by side."

Neither Jago nor Hossack, considered alone or in combination, describes or suggests an ultrasonic imaging method as recited in Claim 1. More specifically, neither Jago nor Hossack, considered alone or in combination, describes or suggests automatically defining a region of interest in the real-time image encompassing the region of treatment after providing medical treatment to the subject. Rather, in contrast to the present invention, Jago merely describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis.

Hossack does not overcome the deficiencies of Jago. Rather, Hossack describes acquiring at least two images, selecting test blocks from both images, determining a translation value, using the translation value to determine a rotation value, and then applying the translation and rotation values to merge the images into a single image with a wider field of view.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Jago in view of Hossack.

Claims 2-5 depend from independent Claim 1. When the recitations of Claims 2-5 are considered in combination with the recitations of Claim 1, Applicant submits that Claims 2-5 are likewise patentable over Jago in view of Hossack.

Claim 10 depends from Claim 9, which recites an ultrasonic diagnostic apparatus including "an ultrasonic probe; a transmitting/receiving device for driving said ultrasonic probe to transmit ultrasonic pulses into a subject and receive ultrasonic echoes from inside the subject

and outputting received data; an ultrasonic image producing device for producing an ultrasonic reference image from the resulting received data, wherein said ultrasonic image producing device is configured to produce a real-time image, said real-time image acquired after providing medical treatment to the subject; a reference image storage device for storing said reference image, said reference image comprising a region of interest encompassing a region of treatment before providing medical treatment to the subject; a scan condition storage device for storing a scan condition for said reference image; an automatic scan condition setting device for reading said scan condition and setting said scan condition, wherein said reference and real-time images are acquired by setting said scan condition; an automatic region defining device for defining in said real-time image the region of interest encompassing the region of treatment after providing medical treatment to the subject; and an ultrasonic image display device for reading said reference image and displaying said reference image and said real-time image side by side."

Neither Jago nor Hossack, considered alone or in combination, describes or suggests an ultrasonic diagnostic apparatus as recited in Claim 9. More specifically, neither Jago nor Hossack, considered alone or in combination, describes or suggests an automatic region defining device for defining in the real-time image a region of interest encompassing the region of treatment after providing medical treatment to the subject. Rather, in contrast to the present invention, Jago merely describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis.

Hossack does not overcome the deficiencies of Jago. Rather, Hossack describes acquiring at least two images, selecting test blocks from both images, determining a translation value, using the translation value to determine a rotation value, and then applying the translation and rotation values to merge the images into a single image with a wider field of view.

Accordingly, for at least the reasons set forth above, Claim 9 is submitted to be patentable over Hossack.

Claim 10 depends from independent Claim 9. When the recitations of Claim 10 are considered in combination with the recitations of Claim 9, Applicant submits that Claim 10 is patentable over Jago in view of Hossack.

Claims 11 recites an ultrasonic diagnostic apparatus including "an ultrasonic probe; a transmitting/receiving device for driving said ultrasonic probe to transmit ultrasonic pulses into a subject and receive ultrasonic echoes from inside the subject and outputting received data; an ultrasonic image producing device for producing an ultrasonic reference image from the resulting received data; a reference image storage device for storing said reference image, said reference image comprising a region of treatment encompassed by a region of interest before providing medical treatment to the subject; a scan condition storage device for storing a scan condition for said reference image; an automatic scan condition setting device for reading said scan condition and setting said scan condition; a scan plane angular scanning device for acquiring a plurality of real-time images at different scan plane angles, said plurality of real-time images acquired after providing medical treatment; a correlation coefficient calculating device for calculating a correlation coefficient between said reference image and each of said real-time images throughout or partially; an automatic region defining device for defining in said plurality of real-time images the region of treatment encompassed by the region of interest after providing medical treatment to the subject; and an ultrasonic image display device for displaying said reference image and one of said real-time images having a highest correlation coefficient side by side."

Neither Jago nor Hossack, considered alone or in combination, describes or suggests an ultrasonic diagnostic apparatus as recited in Claim 11. More specifically, neither Jago nor Hossack, considered alone or in combination, describes or suggests an automatic region defining device for defining in the plurality of real-time images the region of treatment encompassed by the region of interest after providing medical treatment to the subject. Rather, in contrast to the present invention, Jago merely describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis

Hossack does not overcome the deficiencies of Jago. Rather, Hossack describes acquiring at least two images, selecting test blocks from both images, determining a translation value, using the translation value to determine a rotation value, and then applying the translation and rotation values to merge the images into a single image with a wider field of view.

Accordingly, for at least the reasons set forth above, Claim 11 is submitted to be patentable over Hossack.

Claims 12-15 depend from independent Claim 11. When the recitations of Claims 12-15 are considered in combination with the recitations of Claim 11, Applicant submits that dependent Claims 12-15 likewise are patentable over Jago in view of Hossack.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 2-5 and 10-15 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action are respectfully solicited.

Respectfully submitted,

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